DOCUMENT RESUME

ED 201 262 HE 013 /40

AUTHOR Shulman, Carol Herrnstadt

TITLE Instructional Television: Higher Education Without

Commercial Interruption. AAHE-EFIC/Higher Education

Research Currents, May 1981.

INSTITUTION American Association for Higher Education,

Washington, D.C.: ERIC Clearinghouse on Higher

Education, Washington, D.C.

SPONS AGENCY National Inst. of Education (DHEW), Washington,

D.C.

PUB DATE May 81 NOTE 6p.

AVAILABLE FROM American Association for Higher Education, One Dupont

Circle, Suite 780. Washington, DC 20036 (\$.75).

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS *Closed Circuit Television: *College Instruction:

College Programs: Communications Sitellites:

Consortia: Economic Factors: *Educational Felovision: Graduate Study: Higher Education: Program Costs: *Teaching Methods: Telecommunications: *Telecommunications:

Undergraduate Study: Videotape Cassettes

ABSTRACT

The history of instructional television, the development of the telecourse concept, current uses of instructional television, economic factors, and cooperative arrangements are considered. After the initial approach of presenting a piotessor lecturing as if before a class, producers of instructional television began to dramatize the subject, adopt a documentary format, and eventually, develop the telecourse concept. Telecourses combine often-sophisticated celevision programs with related printed materials. Telecourses are either produced for instruction or produced originally for a general audience but have suitable content and quality for instructional purposes. Currently, colleges and universities make extensive use of on-campus, closed-circuit television systems for instruction: however, few direct substantial effort to broadcasting instructional television to orf-campus audiences. Some barriers to greater use of instructional television by four-year institutions are identified. The following developments in video technology are covered: satellite transmission systems, cable television systems, narrowcast technology, instructional television fixed service, and videocassettes and videodiscs. It is suggested that 70 percent of the costs of instructional television are associated with acquiring and modifying the instructional materials and providing programs, while 30 percent or the total posts are for institutional support services. Consortia are a means to produce high-quality programs or to arrange for more efficient use of available telecourses. A bibliography and a list of organizations involved in developing the field of instructional television or providing information on it are included. (SW)



Instructional television— Higher education without commercial interruption

Carol Hermstadt Shulman

instructional television is emerging as a potentially important fool for reaching student audiences in postsecondary education in 1978-79, more than 1,800 colleges and universities used television for instruction, and 735 institutions offered complete courses over relevision. Some 6,884 courses were offered, enrollthe nearly half a million students (Higher Education Utilization Study 1979)

But these figures are small compared to the audiences that instructional television's supporters believe can be reached. Thus the audience could be as large as 64 million-- the total high school graduate population over 25 years of age that has not completed college. Of this group, 6 million are in college and an additional 12 million have taken some college but currently are not enrolled. Instructional television is particularly appropriate for the individuals in this population who are highly motivated fearners and have good basic tearning skills." Most often, per sons with those characteristics are mature adults (Zigereli 1979). as this segment of the nation's population grows, colleges and universities are taking an increased interest in programs directed to these prospective students. Such interest combines with new technologies, new course materials, and new cooperative arrangements among producers and users, to promote a growing use of instructional television.

History of instructional television

Current interest in instructional television recalls its early heyday during the 1950s when 114 coileges and universities teamed up with television stations to present televised college lectures (Carlicle 1974). From this optimistic beginning, instructional television fell into a decline, leaving only a few survivors such as CBS TV's "Sunrise Semester" and the City Colleges of Chicago's TV College

The reasons for the disappearance of much of this programming are instructive. First, before the advent of videotape, television programs were broadcast live and stations provided studio time for instructional television only at hours inconvenent for potential students. Videctape provides greater flexibility in determining when courses may be offered. Second, even when good broadcasting time was available, there often was not enough courseware produced to attract students interested in courses for credit. And third, producers overestimated the potential student audience in a given geographic region and did not realize that long-term instructional programming must draw from a heavily populated region in order to net a sufficiently large student audience (Zigerell 1979).

Perseason Ourselfs is prepared by the ERIC Clearinghouse on Highes Sication The George Waithington University, Washington, D.C. The maherial is tron was prepared pursuant to a contract with the National Institute 11.5. Department of Education. Contractors undertaking such broke. emment (pronociality are encouraged to express finely meir judgmen signal and Inchnical matters. Prior to publication, the manuscript will to the American Association for Higher Education for critical invens mination of professional competence. This publication has met suc-Departs of view or nomen, however, do not necessarily represent the or opinions of either AAHE or the National Institute of Education

Copies of Research Currents may be ordered for 75¢ each (~ and handling) from the American Association for Higher Educative Circle, Suite 780, Washington, D.C. 20036. Payment must accomwider \$15

As an example of successful instructional television, Chicago's TV College overcame these problems and boosted its popularity in other ways. It provided a real off-campus atternative for the Chicago-area population, enabling persistent students to build substantial credit towards or even complete an associate of arts degree. It also wisely recognized that a course should be offered at spaced intervals rather than in successive terms to prevent enrollments from dropping precipitously from one term to the next (Zigerell 1979)

The instructional television of the 1950s and 1960s might not appeal to today's more sophisticated television audiences. The "talking head" approach dominated television courses, presenting a professor lecturing as if before a class. Gradually, however, producers began to use the med um more effectively by providing dramatizations of the subject, a fopting a documentary format, and eventually, developing the telecourse concept (Zigeroll 1979).

Telecourses

The telecourse represents the most recent stage in the evolution of instructional television, and it is rapidly becoming the domimant mode in the field. Telecourses combine often sophisticated television programs with related printed materials to produce a unique educational experience

a felecovarial is an examination and presentation of a body of enemiedge and information through the use of night, bound, color, movement, and print in a manner designed to stimulate and inclosure involvement and clarify and quantify a carefully designed and validated series of learning or lections 1 (Mittelster 1979 quoting

Telecourses may originate either as "courses for television" or as "courses from television," also called "wrap-around courses" (Munsh) 1980), in the first instance, the telecourse is produced for instruction and is typically on a standard academic subject such as government or biology. The user institution arranges for rental, lease, or purchase of the course and for broadcast time, which usually is not during prime time. Printed materials are developed in conjunction with the video component, in contrast, the "wraparound" course is a television series that was produced originally for a general audience and was broadcast during prime time on either a commercial or a Public Broadcasting System station. its content and academic quality, however, make it suitable for instructional purposes. Therefore, printed course material is developed around the original program (Munshi 1980). In either instance, the telecourse is usually about 15 hours long, either as 30 half-hour segments or as 13 to 15 one-hour segments.

Although the television program is at the heart of the telecourse concept, printed materials and other educational activities also are essential. The basic complement to the video program is the study guide, which provides the student with learning objectives for each program and for the entire course. The study guide also includes self-graded pretests, study questions for the television program and for reading assignments, enrichment activities (required and optional), and self-graded or mail-back graded posttests (Mittelstet 1979; Munshi 1980).

Campus liaison is necessary in the telecourse concept. The extent of student-faculty relations depends on how the individual institution decides to organize and administer the telecourse.

*Peter J. Dirr (projects manager, Educational Activities; Corporation for Public Broadcasting) December 9, 1980; conversation with author.

DEPARTMENT OF HEALTH EDUCATION & WELFARE NATIONAL INSTITUTE OF **EDUCATION**

THIS DOLLMENT HAS REFULLED THE DEFENCE OF THE PERSON OF ORDERS THE TOTAL ATTRIBUTE OF THE PERSON OF



T DUCKE

AKATION

vivir ocu

- arotes

7.775

VIPW

~stage

~~

graded tests as well as sevecampus or in a community. arrange for telephone costs. uity overseeing the course

Other telecourse con in of the subject and the comay include a lextbook, reon the arts or required on a for an English composition : experienced produces of teland materials must provifaculty members are from 1978a, p. 10, quoting Poer

Contact may be limited to a staller imput usually includes other Discoul review seasons on think is elicition, many institutions. ation, last incomentation with fac-

 siding to the demands. Heliourse insign They 7160 hal readings, and fearning activities such each options in source visits and course mgraya. .er with compositions amounce Mittlestet 1979 One cruises of resithat "the corriculum 1059 TO 12 mework arrested which in a seema situdy materials" (Gross

Current uses of instrumions mention

Colleges and universities is the conor one of on impus, closed-circuit television system and a tion (Histor Education Utilization Study 1979). He memi substar, al effort. or recommendation of audiences to broadcasting instruction Colleges and universities are in taking am antage of the new developments in no incomprehensi githat can in wictant in come to reach adult audiences vi camplis for instruction and telegraphy and the year institutions than to

PARTICIONAL PROPERTIES	•1	*****	14.03
Committee that the committee of		1,0%	1,000
They are more than the state of the		•	111.0
ing a Dissert Copyrige.			
himst military tours			• • •
a complement with a second	- •		100
was many your			
the state of the			

Foc year institution (#) 49.1 mpu instructional tees had 45000 · • 01 ment for such instruction as 25.5 wepping in the first instance of n i strathm, ann mudents where hat television for ... miction provides lequea nor in quality to t traditiona on-compus mar -s" (Hershfield 🙈 in taken in 1975 in bubare private four-year - hearth's gaving whether facts. TO THE The were or were not subplify we 🐃 Le of televisión - riide ---- (The survey of the survey and services and minampus instructional. 3 a public ereter 40 per int of the respondents of ್ಲೇ ಕ್ರಿಕ್ ಮity supp ಗ as a factor riventing the use of instrof settlem from, and Corpercent in the private sector concurre to the sector 1970s and his With ragar tito institutional slip; te TETO surveys showed that ack not, flexible registral on of such support services as second in use of talevision procedures, was equal via him /Dirr and Pedone 1979h and the

These barriers to meater: Strong actional terrorision and at the development and course inherent in the current system. financing that dominates four an institutions (Hershfield 1987) Traditional methods of course amount involve one facult member devising a course, often wheel aching it. The salars for the course development and the reacting salary are one and the same. In contrast, production in a sophisticated instructional television course involves long-mark = ining, team production and a substantial capital outlas *** titutions are not gearer up for this type of enterphse (Himmon)

in the EPIC Clearinghouses Caro. Herrori di Shuman isia tese ilimini. ON HEIGHT EIGHERE

Video technology

Rapid Severements in video to the service cause telecommunicaen manications revolution" tions, assesses to believe that will become the country over the over ten years (Bonham 1980a, p. Gmith (13a) One factor evolution is the increasingly greater flex or to in the delivery --> programs. That is, new Satellite trace-mission system. mmon of cable systems, and nee home camo systems pro 10% in miblic with more apporturn in the name viewing.

Satellites, Satellite transmiss 🕟 ->tems hold the key to the descriptment of the commurevolution. These satellites

with a reans of transm se es across great distances, we week to con amount terrestrial microwave andy. The !! and tecrease the cost of both and the group of the page of the mession from a single source Marie April 1990 Park 1 large geographic area

thin meat advent age in ic recognized. In 1974 there WARREN ... www. or comply imms, linked together by 1W-1 than 2,000 cable systems tin: nnnected network (Mahoney, ستاك وولج المستراكية والمناسبة المحسد ANT COMPANY OF COMPANY re- illeliste tränsmission to

action with care or example, the Appalachian Comments with a No which provides instructional 14 14 C 14 יים שבולה יכן זין אי י**שט**וחי ਾਤਨ ਵਲੇ ਾ any cable system in the cour to a categorie and 11.4444 ന്നു 🗝 systems, more than half at which are in the coppeni region. ACSN now has about SUCTION TO DESCRIPTION OF THE PERSON OF THE and development of its -veram

weast technologi :mw... rechnologies provide for a ***es at learner to gain access to intronal to some refers to the transmission alevision may two serviting station to a limited adcast transmissions go to tract of tocerant mited in indeed were to the television, instructional oversion fixed service, an invited lists and cassettes are ramples of narrowdasting These technologies may make the pre-motion of instructional programs for specific groups of learn-Thre economically feasible for example:

market audience of 100 000 errors who wish to take a videodisk THE OF DISTRIBUTED WITH than pay for itself, remem-"" cost open television, half a million Americans take publ in courses for credit feluphim today of 38'st

Cable television. With cable television, the television signal is semicated by wire instead of over the air. A cable system may ानकात more than 100 channels. Cable companies are granted truchises by ocal governments to wire their communities and er programming. Currently, there are about 4,000 cable sysserving 3,000 communities and 40 million people (Baltzer

Originally intended to provide a better reception and choice mannels in rural areas, cable television is rapidly moving into areas (Smith 1978b). This development is significant for muctional television since urban locations provide new opporthree for reaching large audiences via cable. Further, most ज्ञान franchises stipulate that the cable system must provide - educational access ** The number of channels available on me affords multiple opportunities for instructional television. addition, cable television may encourage "participation by mieges and universities in creating and producing programs mesigned for the social, cultural, civic, business, and industrial

AAHE Bulletin, May 1961

needs of their community" (Smith 1979) in the investigation that by 1985 cable television will have about a 1994 in ation subscribers (Sonham 1980b).

Instructional television fixed service is an increase second in instructional Commission (FCC ruling, 25 man). In we been set aside in the micros on part of the electromagnetic greathing educational cestro. Instructional cestro. Instructional cestro. Instructional celevity of fixed service. These 29 thanners were nown as instruction may obtain the service. These 29 thanners were nown as instruction may obtain. If \$10 elements is in the normal content of the center of the center of the center of the normal content of the center of th

The microway error extenses to or subject. Similes, so the ECC may are a channel to or strangerally separate institutions around the content (Smith 1978).

Institutions by ITES licenses has a train a television programs to predete. direception don't in the community such as industrial sats promities or some a The a committee tages of ITES as thin diffichannel casimity, which make in proc over a mograpia simility and is leading sible to transmiand the program of the top of the agency tive appability --sentation by pre-The control of the co 10:55.10 ment store with the in which can't to the transmirts em California 1 10; 4, 24 a on in some to mestar. gram that transand the second proin the Los Ang--1311-" their in a conference section on 790 × 1300 x 2 1, 4 A darke more students on a. 45.15% service deliver in lass millional. more than the standard of the

Videocassettes and videodiscommen - Votami in act المراد والمراجية possible by the advent : new apportunities for in and the second المنط المعلقليل فالمناسب المداد المداد cassette p: /ver/recorde years and liarge number ther the fine best as t professional development in the minutes seems are a sign a on videocalisette. Videodes i ... " Level Gum Gines J. plastic disc., that use a specreme 4000 me and that he was 10 percent of the television Sin Actor - Williams videodisci or videocassette nimit to tino, and Stengel 1980:

These technologies have a state as at the local to the individual level on studenth each to the independences and discs on their own time schedule; is they work their rather man remain field to a broadcast schedule; in 1988, in with the individualized approach.

will also review rooms on by the service and special preference of the service of

Economic factors

The cost structure for telecourse instruction that of traditional on-campus instruction of the costs of instructional television are associated with acquiring and modifying the instructional matters. As a conduction programs. Approximately half of this armound it is total costs—goes for air time and faculty saares matterioral support services make up the final 30 percent of the losts.

With traditional instruction, however, facularly state account for 45 percent of the total costs, while any account ont goes for instructional materials. The other 50 percent to the state of the state of the total costs for institutional support services (McCabe 1975)

Thus, enrollment is the key in determinate how mossive telecourse instruction will be:

colliboral in minimient in colliment or any course, beyond games amount in that others is a consultrated consultrate any aminuta good, or brown and the collinear in experience or a collinear in terrocorder and collinear in a collinear in the consultrate of certifal income of the collinear in th

The effore, to make the cost of an instructional television course; impurable with the cost of a traditional course, the former must set a much larger porolliment.

denshfield (19.0° analyzes the cost differences between proing a high-test collogy course and a traditional course. The
interfectual course involves the development of videocasarrest, audiocasseries, and sophisticated written materials, and
impabout \$54,00° per year over a five-year period, excluding
the rity salaries (b) evers is considered the useful life of a highmology course of traditional course, on the other hand, costs
int \$21,000 per or in faculty salary. Hershfield concludes that
have credithed onto each or course enroll 2,333 students over
the very years, common to the opening traditional course.

The course of the course period traditional course.

recoup the plant is a time donts, then, an institution proplant is a teleparate of the second its own damnus and
assertial relegations. The institutions (McCabe 1979) For
themple, a reprology of the now in production for the Dallas
Carbo Community Gottesia. Sistent will dost about \$350,000 to
stant or and predict a second insent or about 4,500 to 5,000 in the
District as well as leasing trainings to recover its costs over its
the star life. The Dimnes of succeeded in covering the expenses
are courses. — In the rest the expenses of the
stant life.

The leasing feet to the more institutions vary depending to adeast the resonant the type of videotape, making a meet Figure 10,750 plus \$10 per student amound to the property of the period and the property of the second-semester charge and the semester charge and th

- Does, the institution pay for the ease?
- Operating with generate error income from tuition/ETE in metagramment by operather transcript of pocket" expenses (10), what in the ided?
- Does it—an control over the little funds generated or the they
 agolistic the present fund of the safe?
- Does if the state or given copert in any form?
- How minimizers it pay fan in a tench telecourses?
- What is the immorbition is a provediate area for students? (Milinist 1999) p. 239.

Consortia

Colleges actively involved with reacourses may form consortial to produce high-quality programmer to arrange for more efficient use of the available telecourses. These consortial may be organized on an acthor basis to work on the development of a single



^{*}David Bucking" -- Innordinator, Canic Coerations, ACSN) January 5, 1981, innoversation with a thor

^{**}Frank W: Not exist executive secretary, Joint Council on Educational Telecommunication** - among 5, 1981 - conversation with author

telecourse or they may be permanent groups overseeing long range development of the production or use of telecourse material.

From the production side, consortia offer attractive benefits to participating institutions. The cooperating institutions develop a course that meets their needs, guaranteeing a substantial market for the telecourse. Pooling resources makes available a larger budget for production, so that a high-quality course can be developed. And institutions involved in the consortia have free use of the telecourse iscross 1978a).

One such collaborative effort several years ago produced a telectourse on American government. Four institutions participated Dallas County Community College District (DCCCD), TV College in Chicago, Coast Community College in southern California, and Tarrant County Junior College District in Texas. DCCCD took the litad in this consortium, contributing 67 percent of the original budget, retaining complete centrol over the work, and providing the production staff. All institutions contributed a full-time faculty member for writing a course "narrative" from which the television script was produced, as well as a study guide, lessons, and tests (Gross 1978a)

The resulting telecourse provided a unique perspective on American government

To accomise state requirements for stelly of state povernment that solve from Cate to State, the domain hum morphers have incorporated a comment of item approach to state government. Content expends the above order order order may be able to set up to assert order order order order order order. That we is the acceptant for active order orders in America, set with the set of the month technical processing model to accept the povernment. In an one-which midst have been prestanted with the left in endances. (Gross 1978a or 2 quoting Monselen)

Consortial arrangements also are adopted by user institutions for purchasing telecourses. By pooling resources institutions are able to purchase more high-quality programs than any single institution deald on its own (Gross 1978b, Hobbs 1980). But there are other advantages as well. Consortlum members share expertise in selecting the programs and in developing study guides and other printed materials (Hobbs 1980). Moreover, by acting as a group, they have some influence over the development of telecourses, that is, they "can begin to prod producers of televised instruction towards better meeting their needs" (Gross 1978b, p. 26)

Conclusion

People in the higher education community who are knowledge able about instructional television fin new video technology and developments in programmit, with tence that instructional television will make great gains or ring the 1980s. They believe it may revolutionize how adults about ress to postsecondary problems that may ineducation. However, they see two m hibit some institutions, especially four year colleges and universities, from actively participating in instructional television. First, the high initial costs of developing a telecourse may seem prohibitive to college administrators accustomed to more modest demands upon the college budget. However, increasing opportunities to lease courses from an expanding group of producers can significantly reduce the costs involved in telecourse instruction and should be considered a reasonable alternative.

A second barrier confronting instructional television is the reluctance of faculty to use the new technology. Often, faculty regard television for off-campus instruction as second-class (Hershfield 1980). Although attitudinal change often is difficult to achieve, some steps to encourage faculty approval of telecourses can and frequently are built into the telecourse system. Through the components of the telecourse (e.g., study guide,

tests, and faculty-student conferences), faculty have an opportunity to randify telecourse instruction to suit their perception of hostic curse should be taught.

Academic administrators and faculty need to inventigate how instructional felevision may help them meet their institutional goals so that they can make a lational decision on whether they should use this approach. It is probable that if institutions fall to become involved in instructional felevision, private industry and new types of educational organizations will step in to provide educational television services to the adult population.

Information resources

Described below are several organizations involved in developing the field of instructional television or providing information on it.

- Adult Learning Programming Department, Public Broadcasting System's Educational Telecommunications Program Service (PTV-3), 475 L'Enfant Plaza SW. Washington, D.C. 20024; Dee Brock, director. The Adult Learning Programming Department, established in July 1980, plans to make available programs to participating PBS stations and cooperating collèges. Three kinds of courses will be offered collège credit courses, informal learning courses and programs, and protessional revelopment and career training courses and programs. Participating Institutions will assign the amount of credit to be awarded and provide for faculty student liaison.
- The Center for Learning and Telecommunications, American Association for Higher Education, One Dupont Circle, Suite 780, Washington, D.C. 20036; Marilyn Kressel, director. The Center assists postsecondary institutions in exploring the potential of technology-based programs. Projects include the synthesis and organization of information already available on telecommunications but currently scattered, a guide to major telecommunications models, and a handbook of alternative technologies.
- Corporation for Public Broadcasting/Annenberg Higher Education Telecommunications Project, CPB, 1111 16th Street NW Washington, D.C. 20036. Under a 15-year, \$150 million grant from Walter H. Annenberg, publisher of *TV Guide*, CPB is planning to produce college-level courses through existing and developing communications systems. The funds will be used to develop telecommunications materials and courses to be offered in coop eration with higher education Institutions for undergraduate degree credit.
- Joint Council on Educational Telecommunications, 1126 16th Street NW, Washington, D.C. 20036; Frank Norwood, executive secretary. The Council is an organization of nongovernmental associations designed to monitor and inform its members about current technologies that may affect opportunities for educations television.
- National University Consortium for Telecommunication in Teaching, University of Maryland University College, College Park Maryland 20742, Allan Hershfield, executive director. Launched in 1980, the NUC plans to make a complete bachelor's degree program available to home-based adult students through television and the directed study learning system developed by the United Kingdom's Open University and the University of Maryland University College. To date, seven institutions are participating in the program, with broadcasts over ten local public television stations and two cable systems.
- University of Mid-America, P.O. Box 82006, Lincoln, Nebraska 68501. Founded in the mid-1970s, the UMA is governed and administered by a consortium of 11 midwestern universities. It



has four objectives: to develop multi-media college-level courses for study at home; to conduct research on adult learning, evaluate learner response to open learning courses, and disseminate research results, to assist the consortium members in their development of open learning delivery systems; and to distribute course materials to institutions nationwide.

■ Wayne State University, University Studies/Weekend College Program, College of Lifelong Learning, Detroit, facilitigan 48002 Since 1973, WSU has offered this program that is désigned especially for employed persons and homemakers. One component of this program is a television program produced by Volumend broadcast daily over Detroit stations in half-hour segment and repeated in five program broads every Sunday during the term. Other components include a workshop, a conference course, and directed study on mes, seminars, and electives

Bibliography

Documents available through the Emil system appear with an ED number To order, write to ERIC Document Reproduction Service, P.O. Box. 190. Arlington, Vol. 20210. ED numbers must be specified. All orders must removing and payment must accompany criticis. Documents are available as indicated at migrafiche (ME) and paper copy (PC).

- Battern, J. (Expanding Affernative eletionic systems). Unpublished paper May 1, 1980.
- Pents: Sally V.: Forming College Television Consortia." *Using Mass Media* for Learning Edited by Roger Yarrington, Washington, D.C., American Association of Community and Junior Colleges, 1979, ED 165-856, MF \$1.06, PC\$8.35.
- Beritram, George W., Introductions. The Communications Revolution and the Education of Americans. New Rochelle, N.Y., Change Magazine Press, 1980a.
- What Next? The Communications Revolution and the Education of Americans, New Rochelle, N.Y.; Change Magazine Press, 1990b.
- Cartistir, Robert D. B. College Credit Through TV. Old Idea, New Dimensions: Lincoln, Neb. Great Plains National Instructional Television. Library, 1974. ED 124-160. MF \$1.06, PC \$15.20.
- Dirr. Peter J. and Pedone, Ronald J. "Instructional Uses of Television by State and Land-Grant Colleges and Universities, 1978 79." September 1979a.
- "Instructional Uses of Television by Private Colleges and Universities, 1978-79." September 1979b.
- Gross, Ronald: "The Other Open University, Part 1." Planning for Higher Education 7(August 1978a) 9-19.
- "The Other Open University, Part II." Planning for Higher Education 7(August 1978b) 25:36
- Helmantoler, Michael C. The Mass Media College Catalog: A Directory of Lawer Division College Course Materials in National Distribution for Ute Via the Mass Media: Washington, D.C. American Association of Community and Junior Colleges, 1979.
- Hershfield, Altan F. "Education's Technological Revolution: An Event In Search of Leaders." *Change* (November/Decumber 1990) 48-52.
- "Higher Education Utilization Stopy" Information packet for press conference, Washington, D.C. Corporation for Public Broadcasting, November 7, 1979.
- Hobbs, Thomas W. "Consortium Uses of Telecourse Materials." Organizing Telecourse Users. Washington, D.C. American Association of Community and Junior Colleges, November 3, 1980.
- Kressel, Manilyn, ed. Adult Learning and Public Broadcasting. Washington. D.C. American Association of Community and Junior Colleges, 1980.
- McCabe, Robert H. "The Economics of Television Centered Courses."

 Using Mass Media for Learning, Edited by Roger Yarrington, Washington, D.C.: American Association of Community and Junior Colleges, 1979, ED 185-856, MESt 06: PCS8-35.
- Mahoney, Sheila; DeMartino, Nick, and Stengel, Robert, Keeping PACE with the New Television. New York, Carnegie Corporation of New York, 1960.
- Mittelstet, Stephen K. "Telecourse Design, Development, and Evaluation."

- Using Mass Media for Learning Edited by Roger Yarrington Stashing ton D1. American Association of Community and June 1970 ED 165 856. ME \$1.08, PC \$8.35.
- Munshi Kiki Skagen Telecourses Retire tion. St. Prepared Septem College Executive Project in Adult Learning Washington position for Public Broadcasting. 1981 1-1. D. Iso. 199. MES.
- Rich, Michael From: The Ascent of Min., to White The .

 Revolution and the Education of American New Roch—
 Change Maggins Press, 1980.
- Smith, Halph Like OA Telecommunication of other toricollege Pressure

 Part I. The Technology Defined. Proceeding Higher Incomparie 7

 (December 1978a) 7-11
 - "A Telecoinmunications Printer for College managements of Implications and Issues," Planning for Higher Edinburg (1978b) 1629
- Zigiroll, James J. 'A Brief Historica' within a transport of the partial of Edited by Roger Yarrington Warnington D.C. American to Attend a tion of Community and Junior College (1979) ED 16 (%). MES1 96 FUSB.W.



